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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/634,258      | 08/08/2000  | paul C. Allen        | 4926/ETEC           | 4935             |

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APPLIED MATERIALS, INC.  
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SANTA CLARA, CA 95050

[REDACTED] EXAMINER

FERNANDEZ, KALIMAH

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2881

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                  |
|------------------------------|-------------------------------|------------------|
| <b>Office Action Summary</b> | Application N                 | Applicant(s)     |
|                              | 09/634,258                    | ALLEN, PAUL C.   |
|                              | Examiner<br>Kalimah Fernandez | Art Unit<br>2881 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 January 2003.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-4,6-10,12-16,18-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,6-10,12-16,18-22 and 24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1,7,13,19, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat No 6,057,639 issued to May et al.
3. May et al discloses a device for generating a plurality of electrons having a source of radiation (col.2, lines 1-5).
4. May et al discloses a spatial light modulator (40) (col.6, lines 7-11).
5. May et al discloses said modulator (40) having a position so as to modulate said radiation emanating from said source of radiation (col.6, lines 7-10).
6. May et al discloses a photocathode (i.e. photoemitter) (5) (col.3, lines 23-26).
7. May et al discloses said photoemitter having a position so as to receive said

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modulated radiation wherein said photocathode produces a plurality of electron beams under impact by said modulated radiation (col.3, lines 20-22; col.4, lines 23-49).

8. May et al further discloses the production of a plurality of electron beam is the result of said modulation of the radiation by the spatial light modulator (col.6, lines 40-46).

9. As per claim 7, May et al discloses the use of his apparatus for electron lithography (col.2, lines 14-32).

10. May et al discloses an electron beam optical column having a position so as to receive said plurality of electron beams and to direct said plurality of electrons beams onto a target (col.6, lines 6-38; figs. 6-7).

11. As per claims 13 and 19, the limitations are discussed above (also see figs. 6-7).

#### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4,10, 16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No. 6,057,639 issued to May et al in view of US Pat No 4,196,257 issued to Engstrom et al.

14. May et al discloses the claimed invention except for "said photocathode is cesium telluride".

15. However, Engstrom et al teaches the typical use of cesium telluride

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photocathodes (col.1, lines 5-11; col.1, lines 55-64).

16. It would have been obvious to an ordinary artisan to incorporate the use of a cesium telluride photocathode into May et al, since Engstrom et al teaches high sensitivity (col.2, lines 59-62).

17. Claims 2-3,8-9,14-15, and 20-21 rejected under 35 U.S.C. 103(a) as being unpatentable over May et al as applied to claims 1,7,13 and 19 above, and further in view of US Pat No 5,395,738 issued to Brandes et al.

18. Baum teaches the claimed invention except for UV radiation.

19. Brandes et al the use of a UV radiation source (col.1, lines 11-15).

20. It would have been obvious to an ordinary artisan to incorporate the teachings of Brandes et al into May et al since Brandes et al teaches improved performance (col.3, lines 9-60).

21. As per claims 3,9,15 and 21, Brandes et al discloses the generation of UV radiation, which is conventional produced using a mercury arc lamp or the like (col.7, lines 23-33).

22. Claims 6,12,18, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al as applied to claim 1,7, and 13 above, and further in view of US Pat No. 5,691,836 issued to Clark.

23. May et al discloses the claimed invention except for a micro-mirror array.

24. However, Clark teaches a spatial light modulator being a micro-mirror array (col.1, lines 13-35).

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25. It would have been obvious to an ordinary artisan to incorporate a micro-mirror spatial light modulator into May since Clark teaches the generally available knowledge that a micro-mirror modulator is common and expected in the art (col.1, lines 24-35).

26. In addition, Clark teaches the use of a micro-mirror spatial modulator for improving speed of computation (col.1, line 55- col.2, lines 3).

***Response to Arguments***

27. Applicant's arguments filed 1-21-03 have been fully considered but they are not persuasive. Applicant argues that May et al fails to disclose or suggest "the simultaneous production of a plurality of electrons beams by the photocathode results from the modulation of the radiation". However, applicant is directed to Fig. 1 of May et al 's disclosure. It is depicted in fig. 1 an optical light (indicated by the dashed lights) impinging upon one cell of SPM (2), subsequently modulating said optical light, impinging photoemission layer (5), and finally the simultaneous generation of a plurality of electron beams (indicated by the solid lines). Furthermore, May et al discloses the optical light being directed at the entire device to engage each lens cell (1) and each SPM cell (2) (col.4, lines 23-34). Therefore, May et al anticipates the claimed invention as described above.

***Conclusion***

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 703-305-6310. The examiner can normally be reached on Mon-Thus between 8:30am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on 703-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

kf

April 2, 2003



JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800